

CLAIMS

We claim:

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1. A method of processing a digital image corresponding to a scanned document having corresponding image data comprising a plurality of pixel values and having an associated background, the method comprising:
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- analyzing image data to obtain statistical data;
- deriving a background noise removal tonemap function for the entire image based on the statistical data;
- storing the image data and tonemap function;
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- providing user selection to:
- in a first case, remove background noise from the image wherein pixel values are converted using the tonemap function prior to rendering the image; and
- in a second case, to bypass background noise removal prior to
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- rendering.
2. The method as described in Claim 1 further comprising pre-processing image data while analyzing image data and using intermediate results obtained from pre-processing the image data to obtain statistical data.
3. The method as described in Claim 1 further comprising storing the tonemap function by generating a corresponding look-up table and storing the look-up table with the image data.
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4. The method as described in Claim 1 further comprising storing the image data and the tonemap function according to a selected document format.
5. The method as described in Claim 1 wherein analyzing the image data further comprises estimating a global background tone value.
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6. The method as described in Claim 5 wherein the tonemap function is derived from the global background tone value.

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7. The method as described in Claim 1 further comprising providing a user interface allowing viewing of a rendering of image data dependent on the user selection.
8. The method as described in Claim 1 further comprising providing a user interface including an option allowing the selection of background noise removal on a page-by-page basis.
9. A method of processing a digital image corresponding to a scanned document having corresponding image data comprising a plurality of pixel values and having an associated background, the method comprising:
- analyzing image data to obtain statistical data;
 - storing the image data and the statistical data;
 - providing user selection to:
 - in a first case, remove background noise from the image wherein pixel values are converted by deriving a background noise removal tonemap function from the stored statistical data; and
 - in a second case, to bypass background noise removal prior to rendering.
10. The method as described in Claim 9 wherein the statistical data is a global background tone value derived from the image data.
11. The method as described in Claim 9 wherein the statistical data is at least one histogram derived from the image data.
12. The method as described in Claim 9 further comprising pre-processing image data while analyzing image data and using intermediate results obtained from pre-processing the image data to obtain statistical data.
13. The method as described in Claim 9 further comprising providing a user interface allowing viewing of a rendering of image data dependent on the user selection.

14. The method as described in Claim 9 further comprising providing a user interface including an option allowing the selection of background noise removal on a page-by-page basis.

5 15. A system for processing a digital image corresponding to a scanned document having corresponding image data comprising a plurality of pixel values and having an associated background, the system comprising:

statistical analyzer for analyzing image data to obtain statistical data;

function derivator for deriving a background noise removal tonemap function for the entire image based on the statistical data;

10 data storage for storing the image data and the tonemap function;

user interface for selecting to, in a first case, remove background noise from the image, and in a second case, to bypass background noise removal prior to rendering;

15 background noise remover for removing noise from image data retrieved from storage dependent upon user selection.